



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/624,857      | 07/24/2000  | David Mottier        | 0054-0215P          | 6255             |

2292 7590 12/19/2003

BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER

SHAH, CHIRAG G

ART UNIT PAPER NUMBER

2664

DATE MAILED: 12/19/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/624,857

**Applicant(s)**

MOTTIER ET AL.

**Examiner**

Chirag G Shah

**Art Unit**

2664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 and 8. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because abstract is not written as a single paragraph on a separate sheet within the range of 50 to 150 words. Correction is required. See MPEP § 608.01(b).

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-17 rejected under 35 U.S.C. 102(a) as being anticipated by Ochiai et al.  
(OFDM-CDMA with Peak Power Reduction Based on the Spreading Sequences).

Referring to claim 1, Ochiai et al. discloses in figure 1 and on sections 1 and 2 of page 1299-1300, OFDM-CDMA system model, which spreads the data stream over several different

Art Unit: 2664

subcarriers by using spreading sequences in the frequency domain, thus disclosing a method of assigning one or more spreading sequences to a user of a multi-carrier Code Division Multiple Access transmission network, each element of the sequence being, at a transmitter of the said network, multiplied by a data item to be transmitted and then transmitted on a corresponding sub-carrier, characterized in that it consists of assigning, to the said user, the said spreading sequence or sequences, taking into account a predetermined set of spreading sequences as claim.

Referring to claims 2, 3 and 4, Ochiai et al teaches on page 1301-1302, section B, describing selection of the sets of sequences and discloses of assigning several generation patterns of different sets of sequences for one OFDM block and the method according to Claim 1, characterized in that the said predetermined set of spreading sequences includes the set of sequences which are used by the said network at the instant of the assigning (the WH sequence and the CAP sequence are used for the spreading sequence of  $m$ th symbol) and which are potentially usable after the instant of the assigning and whose transmission it is wished to favour as claim.

Referring to claim 5, Ochiai discloses in pages 1300-1302 of assigning method according claim 1, characterized in that it consists of allocating, from among all the spreading sequences available at the instant of the assigning, the spreading sequence which minimizes a function representing the interference between the spreading sequence and the spreading sequences of the said predetermined or given set, the sequence of rank thus being assigned if this rank verifies the relationship claimed as claim.

Referring to claims 6 and 7, Ochiai discloses on page 1229 section II and section B of pages 1301-1302 of assigning method according to Claim 1 characterized in that it consists of

Art Unit: 2664

assigning, to each user, at least one spreading sequence so as to take into account the transmission quality envisaged for this sequence or these sequences as claim (orthogonal sets of sequences are preferred since orthogonality guarantees absence of cross-correlation, resulting in no multi-user interference over an AWGN channel). Thus, consists of assigning, to a user desiring a good relative transmission quality, the spreading sequence which minimizes the cost function with the spreading sequences of a predetermined or given set of sequences of index  $k$  belonging to a set, to a user desiring an average transmission quality, the spreading sequence which gives an average value to the cost function with the spreading sequences of predetermined or given set of sequences of index  $k$  belonging to a set and to a user whose transmission quality can be a minimum, a spreading sequence without worrying about the distortion on this sequence as claim

Referring to claim 8-16, Ochiai discloses in section B of pages 1301-1302 and section of Bit error performance degradation due to the erroneous information, figure 5 and on page 1303 (vaiance) of assigning characterize in that the cost function representing the interference between the spreading sequence code and sequences of indices  $k$  belonging to a set is defined as being equal to the maximum value taken by a function representing the degradation of the transmission which is induced as a result of the interference between the spreading sequence and the spreading sequence as claim. Furthermore as disclosed in page 1302, figure 5, the cost function a function representing the degradation of the transmission which is induced as a result of the interference between the spreading sequence and the sequence and further disclosed on page 1300, section of PAPR property of sequences and on page 1302 section of Bit error performance degradation due to the erroneous information of assigning characterized in that the said

Art Unit: 2664

degradation function is defined as follows: where  $E$  is the mathematical expectation,  $M$  the number of sub-carriers used in the MC-CDMA transmission system and is the apparent response of the transmission channel in view of an equalization process implemented in the receiver the response for the frequency of the sub-carrier as claim. In addition calculating interference between the spreading sequence is illustrated based on finding the variance on page 1303 and cost functions for any spreading sequence is illustrated and max and min functions are defined for deallocating and allocating on pages 1301 and 1302 as claims.

Referring to claim 17, Ochiai et al. discloses in figure 1 and on sections 1 and 2 of page 1299-1300, OFDM-CDMA system model, which spreads the data stream over several different subcarriers by using spreading sequences in the frequency domain and a transmitter of a Multi-Carrier Code Division Multiple Access transmission system (figure 1), the transmitter having means for multiplying a user data item by each of the elements of at least one spreading sequence and means for modulating on a sub-carrier each of the signals originating from the said multiplication means, characterized in that it has means of assigning (section B of pages 1301-1302), to a user, at least one spreading sequence, the said assigning means being provided for implementing one of the methods according to claim 1 as claim.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**Or faxed to:**

(703)305-3988, (for formal communications intended for entry)

**Or:**

Art Unit: 2664

(703)305-3988 (for informal or draft communications, please label "Proposed" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G Shah whose telephone number is 703-305-5639. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

cgs

  
**Ajit Patel**  
Primary Examiner